Air-X-Changers
Harsco

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PROPOSAL NO.	964418-A1R0
Date	7/23/2007
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1	Purchaser	COLLICUTT		Ultimate User	TALISMAN
2	Inquiry			Destination	
3	No. Units	1	Model: 96VI	Reference	WAUK H24GL@1438RPM
4	Assembly:	PACKAGED	Draft: INDUCED	Overall Size (WxLxH),	~7.50x13.50x8.76 Est. Wt., lbs:

PERFORMANCE

	Service	EJW	AUX-W	IC	AC
6	Flow	130GPM	35GPM	3.0MMSCFD	3.0MMSCFD
7	Fluid	50%GLY	50%GLY	.648SPGR	.648SPGR
8	Temp. In / Out, f	176.4 / 158.8	163.0 / 132.6	174.0 / 102.9	257.0 / 102.6
9	Pressure, psia			322.0	747.0
10	Pressure Drop, psi	3.0	4.6	1.4	0.7
11	Heat Load, btu/hr	1,043,167	482,147	248,403	585,703
12	True LMTD, f	45.3	35.0	28.8	48.7
13	Overall Rate, U, btu/hr ft^2 f	148.0	139.2	68.3	69.8
14	Fouling Factor, ft^2 hr f / btu	0.0005	0.0005	0.0020	0.0020
15	Surface, Bare / Extended, sq.ft.	159 / 2365	101 / 1505	126 / 2008	172 / 2741
16	**Sections, No./Connected**	(1) COMBINED w/2	(1) COMBINED w/1	(1) SINGLY	(1) SINGLY
17	Design Temp. (Max / Min), f	300/-20	300/-20	300/-20	300/-20
18	Design / Test Press., psig	*14 / 65	*14 / 65	1315 / 1710	1315 / 1710
19	Pass Arrangement	CROSSFLOW	CROSSFLOW	CROSSFLOW	CROSSFLOW
20	No.Tube Rows/Tube Passes	4 / 2	4 / 4	5 / 1	4 / 2
21			Combined w/1		
22	**Tubes, OD x BWG**	3/4X16	3/4X16	5/8X16	5/8X16
23	Material	SA214	SA214	SA214	SA214
24	No.Per Section / Length, ft	66 / 12.5	42 / 12.5	63 / 12.5	86 / 12.5
25	Retarders				
26	Accelerators			.25/CS	
27	**Fins, Type**	L-TENSION / WHEEL	L-TENSION / WHEEL	L-TENSION / WHEEL	L-TENSION / WHEEL
28	Material	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM
29	**Nozzles, Rating/Type**	STUB	STUB	600 RF	600 RF
30	Material	SA106 GR.B	SA106 GR.B	SA105	SA105
31	(No.Inlets) / Size, in	(1) / 3IN	(1) / 2IN	(1) / 3IN	(1) / 3IN
32	(No.Outlets) / Size, in	(1) / 3IN	(1) / 2IN	(1) / 3IN	(1) / 3IN
33	**Headers, Type**	RECT. TUBE	RECT. TUBE	BOX W/PLUGS	BOX W/PLUGS
34	Material	SA500 GR.B	SA500 GR.B	SA516 70	SA516 70
35	Corrosion Allow., in			0.0625	0.0625
36	Grooved Tubesheet			DOUBLE	DOUBLE
37	Plugs, Type	SHOULDER	SHOULDER	SHOULDER	SHOULDER
38	Plugs Material	SA105	SA105	SA105	SA105
39	**Industry Specifications**	AXC-STD	AXC-STD	AXC-STD	AXC-STD
40	ASME Code Stamp / N.B.			YES	YES
41	Canadian Registration #			YES	YES
42	PWHT				
43	NACE				
44	**Inspection/NDT**				UB

F= 100% R.T of all header seam & nozzle butt welds PLUS 100% U.T. of all attachment welds. S= Spot R.T. of 1 long seam & 1 end closure, per header
U = 100% UT of all header seam, attachment & nozzle butt welds. B= 100% R.T. of all nozzle butt welds.
SB= S PLUS B as each are described above. UB= U PLUS B as each are described above.

	AIR-SIDE PERFORMANCE		FAN DATA		DRIVER DATA		REDUCER DATA	
45	Ambient Air Temp., In, f	90	No. Fans / Make	1 / MOORE-CL5K	Type	ENGINE DRIVE	Type	REDUCER BY OTHERS
46	Elevation, ft	2500	Blade Material	ALUMINUM				
47	Air Flow, SCFM	65,288	HP@RPM	19.47 @ 400				
48	Air Temp., Out, f	123.3	Dia., in / No. Blades	96 / 6				
49	Min. Ambient, f	-20	Blade Angle, Deg	7.6 @ Clevis				
50			Series/Blade Adj.	40-ED/Manual				
51			Fan Hub Bushing	TAPER				

52 * Actually built to standard 50# design. Designated 14# to eliminate necessity of Provincial registration.
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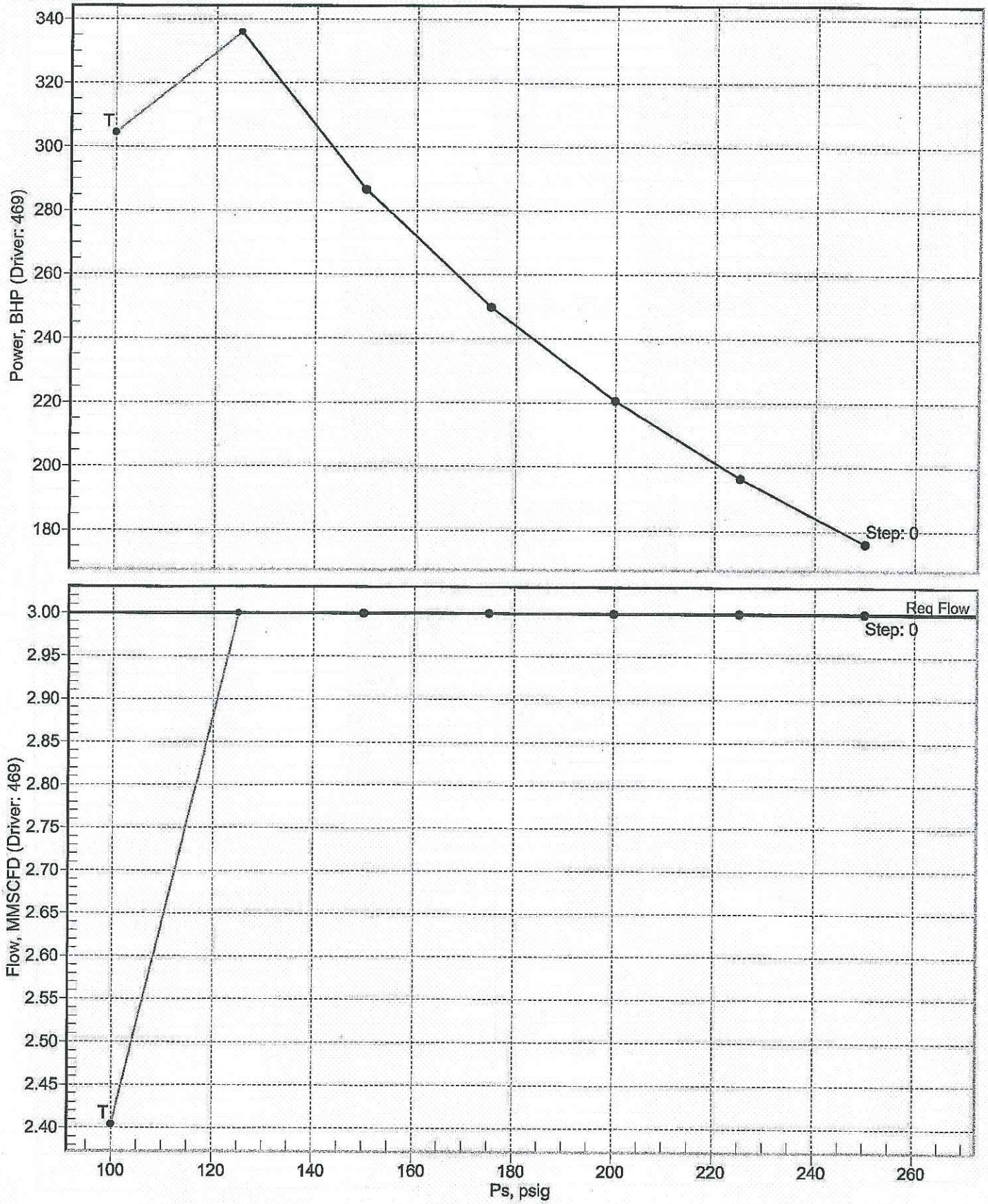
ARIEL Compressor MultiRun

Pd, psig: 725.00

Driver: Waukesha Model: H24GL/GLD
Frame: JGJ/2MMSCFD at 14.70 psia, 60.0 °F
Thw2: 8-3/8RJ (8.375) Stage: 1, Service: Service 1, SG: 0.6480, Suct Temp (°F): 70
Thw1: 5-1/2RJ (5.500) Stage: 2

Ariel 7.5.4.2 MRV 1.5
Mirage Surplus.run
Ariel1_MR.csv



Ariel Performance

Company: Ariel Corporation
Quote:
7.5.4.2 Remarks:

Customer: Mirage Surplus
Inquiry:
Project:

Compressor Data:

Elevat'n,ft:	*2500.0*	Barmtr,psia:	13.400	Ambient,°F:	90.00
Frame:	JGJ/2	Stroke,in:	3.50	Rod Dia,in:	1.500
Max RL Tot,lbf:	42000	Max RL Tens,lbf:	21000	Max RL Comp,lbf:	23000
Rated RPM:	1800	Rated BHP:	620.0	Rated PS FPM:	1050.0
Calc RPM:	1437.7	Calc BHP:	287	Calc PS FPM	838.6

Driver Data:

Type:	Nat. Gas
Mfg:	Waukesha
Model:	H24GL/GLD
BHP:	531 (504)
Avail:	469 (35)

Service	**Service 1**	
Stage Data	**#1**	**#2**
Flow Req'd, MMSCFD	3.000	
Flow Calc, MMSCFD	3.000	3.000
Cyl BHP per Stage	120.4	161.5
Specific Gravity	0.6480	0.6480
Ratio of Sp Ht (N)	1.2806	1.2737
Comp Suct (Zs)	0.9747	0.9650
Comp Disch (Zd)	0.9719	0.9657
Pres Suct Line, psig	150.00	N/A
Pres Suct Flg, psig	148.37	303.48
Pres Disch Flg, psig	310.46	735.00
Pres Disch Line, psig	N/A	725.00
Pres Ratio F/F	2.002	2.362
Temp Suct, °F	70.00	120.00
Temp Clr Disch, °F	120.00	120.00
Cylinder Data	**Throw 2**	**Throw 1**
Cyl Model	8-3/8RJ	5-1/2RJ
Cyl Bore,in	8.375	5.500
Cyl RDP (API),psig	577.3	1568.2
Cyl MAWP,psig	635.0	1725.0
Cyl Action	DBL	DBL
Cyl Disp, CFM	315.7	133.2
Pres Suct Intl, psig	141.61	289.35
Temp Suct Intl, °F	74	124
Suct Zsph	0.9753	0.9659
Pres Disch Intl, psig	326.73	771.77
Temp Disch Intl, °F	174	257
HE Suct Gas Vel, FPM	6601	7255
HE Disch Gas Vel, FPM	6569	7033
HE Spcrs Used/Max	0/2	0/2
HE Vol Pkt Avail, %	1.08+55.93	1.17+52.89
HE Vol Pkt Used, %	100.00 (V)	0.00 (V)
HE Min Clr, %	18.63	14.49
HE Total Clr, %	75.64	15.65
CE Suct Gas Vel, FPM	6389	6716
CE Disch Gas Vel, FPM	6358	6510
CE Spcrs Used/Max	0/2	0/2
CE Min Clr, %	19.33	16.18
CE Total Clr, %	19.33	16.18
Suct Vol Eff HE/CE, %	40.4/80.4	79.0/78.5
Disch Event HE/CE, ms	6.3/10.5	8.6/9.6
Suct Pseudo-Q HE/CE	4.1/4.0	3.9/3.3
Gas Rod Ld Comp, lbf	10465	12014
Gas Rod Ld Tens, lbf	9604	10062
Gas Rod Ld Total, lbf	20069	22076
Xhd Pin Deg/%Rvrsl	146/98.8	157/70.9
Flow Calc, MMSCFD	3.000	3.000
Cyl BHP	120.4	161.5

Step: 0 - Adjusted Flow: 3.000 MMSCFD

Ariel Performance

Company: Ariel Corporation
Quote:
7.5.4.2 Remarks:

Customer: Mirage Surplus
Inquiry:
Project:

Compressor Data:

Elevat'n,ft:	*2500.0*	Barmtr,psia:	13.400	Ambient,°F:	90.00
Frame:	JGJ/2	Stroke,in:	3.50	Rod Dia,in:	1.500
Max RL Tot,lbf:	42000	Max RL Tens,lbf:	21000	Max RL Comp,lbf:	23000
Rated RPM:	1800	Rated BHP:	620.0	Rated PS FPM:	1050.0
Calc RPM:	*823.0*	Calc BHP:	176	Calc PS FPM	480.1

Driver Data:

Type:	Nat. Gas
Mfg:	Waukesha
Model:	H24GL/GLD
BHP:	531 (504)
Avail:	469 (35)

Service	**Service 1**	
Stage Data	**#1**	**#2**
Flow Req'd, MMSCFD	3.000	
Flow Calc, MMSCFD	3.000	3.000
Cyl BHP per Stage	99.2	74.0
Specific Gravity	0.6480	0.6480
Ratio of Sp Ht (N)	1.2869	1.2859
Comp Suct (Zs)	0.9593	0.9474
Comp Disch (Zd)	0.9563	0.9475
Pres Suct Line, psig	250.00	N/A
Pres Suct Flg, psig	247.37	469.74
Pres Disch Flg, psig	478.60	735.00
Pres Disch Line, psig	N/A	725.00
Pres Ratio F/F	1.887	1.549
Temp Suct, °F	70.00	120.00
Temp Clr Disch, °F	120.00	120.00
Cylinder Data	**Throw 2**	**Throw 1**
Cyl Model	8-3/8RJ	5-1/2RJ
Cyl Bore,in	8.375	5.500
Cyl RDP (API),psig	577.3	1568.2
Cyl MAWP,psig	635.0	1725.0
Cyl Action	DBL	DBL
Cyl Disp, CFM	180.7	76.3
Pres Suct Intl, psig	243.74	462.52
Temp Suct Intl, °F	73	122
Suct Zsph	0.9602	0.9481
Pres Disch Intl, psig	487.04	748.63
Temp Disch Intl, °F	159	186
HE Suct Gas Vel, FPM	3779	4154
HE Disch Gas Vel, FPM	3761	4026
HE Spcrs Used/Max	0/2	0/2
HE Vol Pkt Avail, %	1.08+55.93	1.17+52.89
HE Vol Pkt Used, %	100.00 (V)	0.00 (V)
HE Min Clr, %	18.63	14.49
HE Total Clr, %	75.64	15.65
CE Suct Gas Vel, FPM	3658	3845
CE Disch Gas Vel, FPM	3640	3727
CE Spcrs Used/Max	0/2	0/2
CE Min Clr, %	19.33	16.18
CE Total Clr, %	19.33	16.18
Suct Vol Eff HE/CE, %	46.5/82.0	88.3/88.1
Disch Event HE/CE, ms	12.2/19.2	20.3/22.1
Suct Pseudo-Q HE/CE	1.4/1.3	1.3/1.1
Gas Rod Ld Comp, lbf	13842	7627
Gas Rod Ld Tens, lbf	12534	5464
Gas Rod Ld Total, lbf	26376	13091
Xhd Pin Deg/%Rvrsl	166/98.2	179/71.7
Flow Calc, MMSCFD	3.000	3.000
Cyl BHP	99.2	74.0

Step: 0 - Adjusted Flow: 3.000 MMSCFD